



Mobile Phone A3618 White Paper

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PREFACE

Purpose Of This Document

The Ericsson A3618 White Paper is designed to give the reader a deeper technical understanding of how the A3618 is designed, and of how it interacts with other media. This document will make it easier to integrate the A3618 with the IT and communications solutions of a company or organization.

People who can benefit from this document include:

- Corporate buyers
- IT Professionals
- Software developers
- Support engineers
- Business decision-makers

The best place to find all the extras you need to support your phone and daily life is at the Ericsson Mobile Internet, <http://mobileinternet.ericsson.com>. Here you will find downloadable ring tones, games, news, information, and a host of exciting links to other sites.

More information, useful for product, service and application developers, is published on the Ericsson Mobility World. The site at <http://www.ericsson.com/mobilityworld> contains up-to-date information about technologies, products and tools.

PRODUCT OVERVIEW

The A3618 is a fully featured phone with appealing design and Dual Band support.

- VIP callers can be identified by display backlight colour and ring type.
- Predictive text input, T9® Text Input, makes typing quicker and easier. Input methods Latin, Numeric, Stroke, Bopomofo and Pinyin supported.
- It supports SIM Application Toolkit (Online Services), which makes it possible for operators to provide new services to existing users over the air, including new menus and functions in the phone.
- Profiles feature; groups of settings preset to suit certain environments, such as "Meeting", "Indoor".
- A full graphic display with an easy to navigate, user interface software.
- Numbered shortcuts make it possible to prepare settings into a favourite menu which the user can access quickly and easily.
- Built-in calendar, games, screen-saver and start-up and shut-down shows that feature a short animation with a melody.

FUNCTIONS AND FEATURES

In-phone Functions And Features

Profiles

The profile feature; group of settings preset to suit a certain environment. The profiles are also useful for company integration with call forwarding etc.

Calendar

The A3618 has a built-in calendar for storing information about important events.

VIP Caller Identification

The A3618 makes it possible to associate a display backlight colour (green, yellow, red or blue) and a special ring signal to selected numbers in the phone book. An incoming call from a VIP caller is indicated by the selected backlight colour and ring signal.

Start-up And Shut-down Shows

The A3618 has built-in start-up and shut-down shows that feature a short animation with a melody. One option "Predefined" is available for operator customization. The user can select which animation and melody to be used, .

More In-phone Functions And Features

- Alphabet input
- Alarm Clock
- Background light
- Chinese text input (Stroke, Pinyin and Bopomofo)
- Clock
- Ericsson ring signal logotype
- Full graphic display up to 4 rows of text
- Games
- Shortcuts
- Language selection
- Last dialled numbers
- Last received number redial
- Menu shortcuts
- Missed calls list
- Personal ring types
- Phone book
- Received calls list
- Ring signal composition
- Screen-saver
- Speed dialling
- Memory status
- Vibrating alert

Network-Dependent Features

SMS Messaging

The A3618 is capable of sending and receiving SMS messages.

- With the Short Message Service, a user can send text messages containing up to 160 characters to and from GSM mobile stations (up to 70 characters using Chinese text)

A Service Centre (SC) acts as a storage and forwarding centre.

SMS consists of two basic services:

- Mobile Originated SMS (from a mobile station to an SMS-C)
- Mobile Terminated SMS (from an SMS-C to a mobile station)

For Mobile Originated SMS, an SMS message is sent from a Mobile Station to the SMS-C where it is forwarded to its destination. This can be another Mobile Station, or a terminal in the fixed network.

A Mobile Terminated SMS is when an SMS message is forwarded from the SMS-C to a Mobile Station. When the Mobile Station receives the message, it returns a delivery report saying the transfer was successful.

The A3618 also lets you save those often-used messages as templates. You can save up to ten templates consisting of up to twenty-five characters each in the phone's memory. The A3618 also features an SMS counter allowing you to keep track of SMS messages that you have sent.

Fixed Dialling And Restricted Calls

For a company or an organization, it can be useful to restrict phone calls. Fixed Dialling allows you to preset a number of digits, for example area codes. This restricts the user to making calls only to numbers which use the preset digits as leading digits. Fixed Dialling makes use of the PIN2, and it requires fixed dial fields on the SIM Card. Check with your Operator about this feature.

Restricted calls allows you to block outgoing or incoming calls in certain situations, for example international calls.

More Network-dependent Features

- Advice of Charge Charging
- Advice of Charge Information
- Call barring
- Call forwarding
- Call hold
- Call transfer
- Call wait
- Calling Line Identification CLI
- Closed User Groups
- Conference calls
- EFR Enhanced Full Rate Speech Coding
- FR Full Rate Speech Coding
- GSM 900/1800 Dual band
- GSM phase 2+ (part of)

- Home zone indication
- International roaming
- Phone book on SIM
- SIM Application Toolkit
- Voice mail

SIM APPLICATION TOOLKIT

The SIM Application Toolkit (SIM AT) is a smartcard-centric method of deploying programs that apply only to GSM and to SMS and USSD transports. Programs must be distributed on smartcards. WAP is an Internet-centric method of deploying programs that is independent of network technology. Programs and content are kept centrally on web servers and downloaded as required. While there is some overlap, WAP is a particularly good choice when deploying programs that also have an HTML version for desktop use. Work is currently underway on building interfaces between the two technologies.

For an operator, a company or service provider, SIM AT offers a powerful way to deploy programs and services to users, without the need for new or upgraded equipment. All necessary setup and programming is distributed to the users over the air, directly to their phones. In the A3618, a separate menu is available for functions residing on the SIM card. These can include submenus for controlling functions, and also functions which allow the phone to initiate calls, send data, and display information for the user.

SIM AT Services Supported By The A3618

Service	Mode	Support in A3618
CELL BROADCAST DOWNLOAD		Yes
DISPLAY TEXT	bit 1: 0 = normal priority	Yes
	1 = high priority	Yes
	bit 8: 0 = clear message after a delay	Yes
	1 = wait for user to clear message	Yes
GET INKEY	General: The GET_INKEY requires that the user press "Yes" to confirm his/her choice	Yes
	bit 1: 0 = digits (0-9, *, # and +) only	Yes
	1 = alphabet set	Yes
	bit 2: 0 = SMS default alphabet	Yes
	1 = UCS2 alphabet	Yes
	bit 3: 0 = character sets defined by bit 1 and bit 2 are enabled.	No
	and 1 = character sets defined by bit 1 and bit 2 are disabled and the "Yes/No" response is requested.	No

Service	Mode	Support in A3618
GET INPUT	General: No of hidden input characters.	20
	bit 1: 0 = digits (0-9, *, # and +) only	Yes
	1 = alphabet set	Yes
	bit 2: 0 = SMS default alphabet	Yes
	1 = UCS2 alphabet	Yes
	bit 3: 0 = ME may echo user input on the display	Yes
	1 = user input not to be revealed in any way (see note)	Yes
	bit 4: 0 = user input to be in unpacked format	Yes
	1 = user input to be in SMS packed format	Yes
	bit 8: 0 = no help information available	Yes
	1 = help information available	No
MORE TIME		Yes
POLLING OFF		Yes
POLL INTERVAL		Yes
PROVIDE LOCAL INFORMATION	'00' = Location Information (MCC, MNC, LAC and Cell Identity)	Yes
	'01' = IMEI of the ME	Yes
	'02' = Network Measurement results	No
	'03' = Date, time and time zone \$(DTTinPLI)\$	No
REFRESH	General: The reset option requests the user to turn off and turn on the mobile.	Yes
	'00' =SIM Initialization and Full File Change Notification;	Yes
	'01' = File Change Notification;	Yes
	'02' = SIM Initialization and File Change Notification;	Yes
	'03' = SIM Initialization;	Yes
	'04' = SIM Reset;	Yes
SELECT ITEM		Yes
SEND SHORT MESSAGE	bit 1: 0 = packing not required	Yes
	1 = SMS packing by the ME required	Yes
SEND SS		Yes

Service	Mode	Support in A3618
SET UP CALL	General: Capability configuration	Yes
	Setup speech call CallParty Subaddress	No
	DTMF support	Yes
	'00' = set up call, but only if not currently busy on another call;	Yes
	'01' = set up call, but only if not currently busy on another call, with redial;	Yes
	'02' = set up call, putting all other calls (if any) on hold;	Yes
	'03' = set up call, putting all other calls (if any) on hold, with redial;	Yes
	'04' = set up call, disconnecting all other calls (if any);	Yes
	'05' = set up call, disconnecting all other calls (if any), with redial;;	Yes
SET UP MENU		Yes
SMS PP DOWNLOAD		Yes
START MENU		Yes

User Interaction With SIM AT

DISPLAY TEXT	A text string of up to 160 characters (80 UCS coded) is supported.
Text clearing times	10-20 seconds. 60-second timeout limit for the user to clear the text.
'Key' responses	'Long NO' – Proactive session terminated by user. 'NO' – Backward move in proactive session. Any other key clears display if the command is performed successfully.
GET INKEY	Prompt for a one character input. Pressing 'YES' without entering a character gives warning message "Minimum 1 character".
'Key' responses	'C' clears current character. 'Long NO' terminates the proactive session. 'NO' – Backward move in proactive session. 'YES' – Command performed successfully.
GET INPUT	Prompt for character input. Pressing 'YES' without entering a character gives warning message "Minimum 'no' characters". The phone will refuse to accept further input when maximum response length is exceeded.
MMI Maximum Response lengths	Digits Only – xx characters SMS default alphabet characters – 160 characters Hidden Characters (Digits Only) – 20 characters
'Key' responses	'C' clears current character/characters. 'Long No' terminates the proactive session 'NO' – Backward move in proactive session 'YES' – Command performed successfully

REFRESH	A requirement to turn the phone off and then on again can be sent to the user with the text 'Operator has updated your SIM! Restart phone to update!'.
SELECT ITEM	Scroll to highlight item for selection. The maximum number of items supported by the phone within one Select Item command, is 30.
'Key' responses	Down arrow – Scroll down list Up arrow – Scroll up list Long No' terminates proactive session 'NO' – Backward move in proactive session 'YES' – Command performed successfully
SEND SHORT MESS.	Default message "Sending message Please wait" can be replaced for the Alpha Identifier text, or suppressed completely if a null text is provided. Responses are "MESSAGE FAILED" or MESSAGE SENT".
'Key' responses	'Long No' or 'NO' terminates the proactive session
SET UP CALL	If the ME is on a call when the command 'Set up Call, putting all other calls on hold' is sent, the user will see the text 'Setting up a call current call will be held'. If the 'YES' key is pressed the current call will be put on hold and the new call set up. If the ME is on a call when the command 'Set Up Call, disconnecting all other calls' is sent, the user will see the text 'Setting up a call current call will be disconnected'. If the 'YES' key is pressed the current call will be disconnected and the new call set up.
SET UP MENU	Incorporates a SIM Application Toolkit Menu Item into the ME's main menu structure. From the standby display the right or left arrow buttons can be pressed to select the Menu Items. (Note: The SIM AT menu option is found in the 'Extras' menu.) If an Alpha Identifier is supplied in the Set Up Menu command this is used as the SIM AT entry in the ME's main menu. If no alpha identifier is supplied and only one item provided, then this item is used as header. If no alpha identifier is supplied and several items are found in the menu, a default title is used. If the SIM AT Menu Item is selected using the 'YES' key all the items sent in the Set Up Menu command will be available for selection, in the same way as the Select Item command. A limit of 30 menu items has been set within this command.
'Key' responses	Down arrow – Scroll down list Up arrow – Scroll up list Side key: Scrolls the menu 'YES' – Envelope (Menu Selection)

TERMINOLOGY AND ABBREVIATIONS

Calling Line Identification (CLI)	Shows the number of the person calling you in your mobile phone display. You can then make an informed choice as to whether or not to take the call. Bear in mind that not all numbers can be displayed. To use this service, it must be supported by your network.
DTMF or Touch Tone	Dual Tone Multi-Frequency signal – codes sent as tone signals. Used for telephone banking, accessing an answering machine, etc.
EFR	Enhanced Full Rate, speech coding.
ETSI	European Telecommunications Standards Institute.
FR	Full Rate, speech coding.
GSM	Global System for Mobile Communications. GSM is the world's most widely-used digital mobile phone system, now operating in over 100 countries around the world, particularly in Europe and Asia-Pacific.
GSM 900	The GSM systems family includes GSM 900, GSM 1800 and GSM 1900. There are different phases of roll-out for the GSM system and GSM phones are either phase 1 or phase 2 compliant.
GSM 1800	Also known as DCS 1800 or PCN, this is a digital network working on a frequency of 1800 MHz. It is used in Europe and Asia-Pacific.
ME	Mobile Equipment.
MMI	Man-machine interface.
MS	Mobile Station.
MT	Mobile Termination.
Phone book	A memory in your mobile phone or SIM card where phone numbers can be stored and accessed by name or position.
PIM	Personal Information Management.
SC	Service Centre (for SMS).
Service Provider	A company that provides services and subscriptions to mobile phone users.
SIM card	Subscriber Identity Module card – a card that must be inserted in any GSM-based mobile phone. It contains subscriber details, security information and memory for a personal directory of numbers. The card can be a small plug-in type or credit card-sized but both types have the same functions. Your phone uses the small plug-in card.
SMS	Short Message Service. Allows messages of up to 160 characters to be sent and received via the network operator's message centre to your mobile phone. Messages are stored if the phone is off or out of reach ensuring that they reach you. To use this service, it must be supported by your network.
SS	Supplementary Services.
TE	Terminal Equipment.
USSD	Unstructured Supplementary Services Data.
VAD	Voice Activated Dialling.
WAN	Wide Area Network.

RELATED INFORMATION

Documents

- The A3618 User's Guide

Links

- <http://mobileinternet.ericsson.com>
- <http://www.ericsson.com/mobilityworld>
- <http://www.imc.org>
- <http://www.imc.org/pdi/>
- <http://www.etsi.fr>

Trademarks And Acknowledgements

T9 is a registered trademark of Tegic Communications.

APPENDIX: TECHNICAL SPECIFICATIONS

The consumer pack includes

- 1 Mobile Phone A3618
- 1 Battery BST-18 (650 mAh)
- 1 Travel Charger CTR-10 *)
- 1 User's Guide

General

Product name	A3618s/A3618sc
System	GSM phase 2 recommendations. GSM 900 (CTR 19 and CTR 20) and GSM 1800 (CTR 31 and CTR 32)
Speech coding	FR, EFR supported where available, for high speech quality
SIM card	Small plug-in card, 3V or 5V type
Type nmbr A3618s	1101801-BV
Type nmbr A3618sc	1101801-CN

Exterior Description

Size	111 x 45 x 22 mm
Weight	with battery 86g
Display size	101 pixels wide, 54 pixels high
Graphic display	High-resolution display
Backlight colour	4 different for VIP caller identification (green, yellow, red, blue)
Text rows	up to 4 lines of text
Colours	Icy Silver, Graphite Silver
Battery	Lithium-Ion (650 mAh)
Keypad	17 keys and two volume side keys

Ambient Temperatures

Operating	Max: +55°C, Min -10°C
Storage	Max: +70°C, Min -40°C
Charging	Max: +35°C, Min 0°C

Supported Man-Machine Interface (MMI) languages

Depending on software in the phone, these languages are supported:

Bahasa Indonesian (IN), Bahasa Malaysia (MS), Chinese Simplified (ZS), Chinese Traditional Hong Kong (ZH), Chinese Traditional Taiwan (ZT), English (EN), German (DE), Russian (RU), Tagalog (TL), Thai (TH), Turkish (TR), Vietnamese (VI)

*) Depending on configuration of consumer pack.

Performance And Technical Characteristics

Dimension	GSM 900	GSM 1800
Frequency range	TX: 880 – 914 MHz RX: 925 – 959 MHz	TX: 1710 – 1785 RX: 1805 – 1880
Channel spacing	200 kHz	200 kHz
Number of channels	174 Carriers *8 (TDMA)	374 Carriers *8 (TDMA)
Modulation	GMSK	GMSK
TX Phase Accuracy	< 5° RMS Phase error (burst)	< 5° RMS Phase error (burst)
Duplex spacing	45 MHz	95 MHz
Frequency stability	+/- 5 ppm (downlink RX)	+/- 175 Hz (downlink RX)
Voltage operation (nominal)	3.0 Volts	3.0 Volts
Transmitter RF power output	33 dBm Class 4 (2W peak)	30 dBm Class 1 (1W peak)
Transmitter Output impedance	50 Ω	50 Ω
Transmitter Spurious emission	< -36 dBm up to 1 GHz < -30 dBm over 1 GHz (according to GSM spec.)	< - 30 dBm (according to GSM spec.)
Receiver RF level	Better than – 102 dBm	-100 dBm
Receiver RX Bit error rate	< 2%	< 2.43%
*) No DTX activated		

Current Consumptions, Talk And Standby Times

Dimension	GSM 900	GSM 1800
Transmission current	303 mA (min) 320 mA (max)	220 mA (min) 240 mA (max)
Standby current	4.0 mA (min), (paging rate 9, 5 neighbour present) 6.5 mA (max), (paging rate 2, 5 neighbours present)	3.9 mA (min), (paging rate 9, 5 neighbour present) 6.4 mA (max), (paging rate 2, 5 neighbours present)
Talk time	2.5 hours * to 4 hours	2.5 hours * to 4 hours
Standby time	90 to 155 hours (up to 6.5 days).	90 to 155 hours (up to 6.5 days).
*) No DTX activated		

Speech Coding

Dimension	Full rate	Enhanced full rate
Type	RPE/LPC with LTP	ACELP
Bit rate	13.0 Kbp/s	12.2 Kbp/s
Frame duration	20 ms	20 ms
Block length	260 bits	244 bits
Class 1 bits	182 bits	
Class 2 bits	78 bits	

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